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Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 9

Application Number: 09/212,127

Filing Date: December 15, 1998

Appellants: BRANDLEY ET AL.

Thompson E. Fehr
For Appellant

MAILED
DEC 18 2001
GROUP 2800

EXAMINER'S ANSWER

Art Unit: 2834

This is in response to the appeal brief filed October 19, 2001.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct, but does not refer to the specification by page and line number or the drawings by figure number and reference number.

(6) *Issues*

Appellant's brief presents arguments relating to the objection to the drawings(first issue). This issue relates to petitionable subject matter under 37 CFR 1.181 and not to appealable subject matter. See MPEP §§ 1002 and 1201.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1-33 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) ClaimsAppealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

<u>Patent Number</u>	<u>Inventor</u>	<u>Publication Date</u>
5,442,250	Stridsberg	8/1995
4,223,255	Goldman et al.	9/1980
5,156,579	Wakuta et al.	10/1992
5,755,302	Lutz et al.	5/1998

(10) Grounds of Rejection

The following grounds of rejection are applicable to the appealed claims:

Claims 1-33 are rejected under 35 U.S.C. 103. This rejection is set forth in prior Office Action, Paper No. 5. The rejection is repeated below for the convenience of the Board of Appeals and Interferences.

Claims 1-2, 11-12, 21-22 and 31-33 are under 35 U.S.C. 103(x) as being unpatentable over Stridsberg in view of Goldman. Stridsberg discloses an electric motor having a drive wheel (102) with permanent magnets (101) attached to it, electromagnets (110) arranged opposite the permanent magnets, a sensor (112), a switch (411,421,431,413,423,433) and a computer (451). The assembly is supported by a structure (109). The controller of Stridsberg provides an inverting function to change the switches in order to effect braking of the motor. However, Stridsberg does not disclose the electromagnets arranged generally in a plane that is substantially parallel to, but not within, the plane or planes containing the permanent magnets. Goldman teaches that it is well known in the art to form an electric drive for a motor with electromagnets (4,5) arranged generally in a plane that is substantially parallel to, but not within, the plane or planes containing the permanent magnets (7,8). As is well known in the art, such

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placement of the electromagnets and permanent magnets does not effect the operation of the motor, but do allow alteration of the size of the motor to minimize an axial dimension of the device while maintaining the desired mechanical output from the machine. It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed the motor of Stridsberg such that the electromagnets arranged generally in a plane that is substantially parallel to, but not within, the plane or planes containing the permanent magnets, as disclosed by Goldman, in order to allow the size of the motor to be minimized in a desired direction.

Claims 5-6, 8-9, 15-16, 18-19, 25-26 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stridsberg in view of Goldman and further in view of Wakuta ('579). Stridsberg and Goldman disclose the electric motor essentially as claimed except for a cavity in which a heat transferring or heat absorbing material is provided along with a radiating surface. Wakuta teaches that it is well known to provide a cavity (20) in which a heat transferring material (oil) is circulated to cool the motor windings. A radiating surface (14,15) is provided to cooperate with the cavity to remove heat from the material. Thus, the motor is efficiently cooled. It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided, in the motor of Stridsberg and Goldman, a cavity with a heat transferring or absorbing material therein in communication with the electric motor in order to cool the electric motor, as shown by Wakuta. It would have been further obvious to have provided a radiating surface, as disclosed by Wakuta, to remove heat from the material. Whereby the electric motor will be efficiently cooled. Wakuta discloses several cavities (1,2,3 and 20) which contain a heat absorbing material.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stridsberg in view of Goldman and further in view of Lutz. Stridsberg and Goldman disclose the electric motor essentially as claimed except for providing input from the user to program the controller and inverter between the sensor and the switches. Lutz teaches that it is well known to allow user input to a computer controlled electric motor system in order to program the computer with the desired operation of the system, see figure 3. It would have been obvious to one of ordinary skill in the art at the time of the invention to have allowed user input to the controller of Stridsberg and Goldman in order to select the desired operating characteristics of the system, as shown by Lutz.

(11) Response to Argument

The Applicant's arguments regarding the 35 USC 112, first paragraph enablement rejection are persuasive. The rejection is withdrawn. The Applicant's arguments regarding the 35 USC 103 rejection are not persuasive.

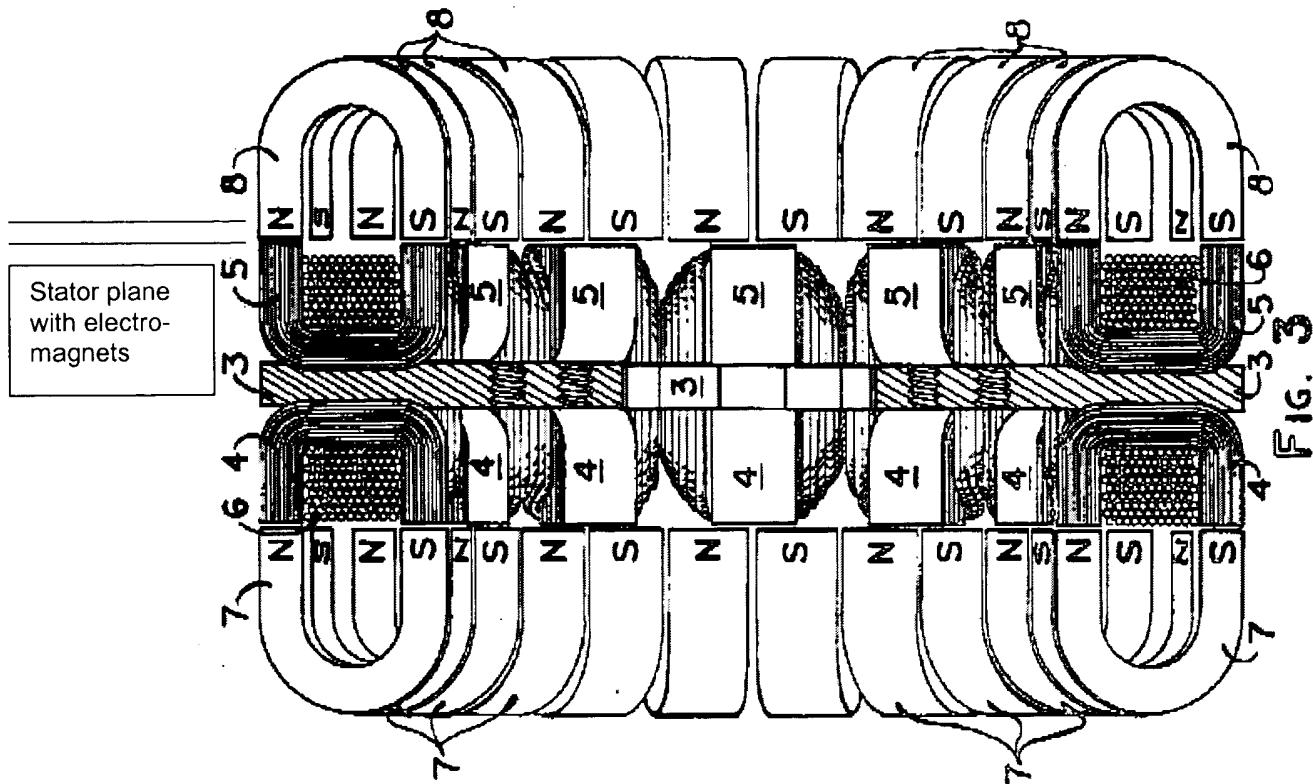
The Applicant's argument that Strident and Goldman does not teach the permanent magnets and electromagnets in planes parallel to each other is not persuasive. Strident teaches the permanent magnets with opposite polarities being positioned sufficiently near the electromagnets to allow the magnetic fields to interact. Strident only lacks the permanent magnets and electromagnets being positioned with an axial air gap in parallel planes. The interchangeability of the air gap in a motor being oriented radially or axially is well known in the motor art, where an axial air gap (parallel planes between rotor and stator provides an axially compact motor when compared to a radial air gap motor. The examiner has provided Goldman to show that axial air gap motor used to construct a compact motor for driving a wheel (column 1, lines 47-48).

The Applicant's arguments regarding the Hanselman reference is not persuasive because the reference is not of record and the argument was not presented during prosecution on the merits. The argument regarding Hanselman is not persuasive, even if it was entertainable, because radial and axial air gap motors operate the same. The only difference is the orientation of the rotor and stator parts to provide a radial air gap or an axial air gap between the rotor and the stator. The main reason for a motor designer to choose between an axial or radial air gap is the space available for the motor. Axial air gap(pancake motors) are thin axially and radially tall, while radial air gap motors are radially small compared to their axial length.

The Applicant's arguments regarding the shape of the electromagnets and permanent magnets of Goldman are not persuasive because the limitations are not claimed. The only requirement set forth in the claims is that the permanent magnets

and electromagnets are in parallel planes. Goldman clearly teaches this limitation because the pole faces of the electromagnets 4 are parallel to the faces of the permanent magnet 7 so as to create an axial air gap between the parallel plane of the rotor and the stator (See figure below). The Applicant's argument that all the electromagnets and all the permanent magnets do not lie in the same plane is not persuasive because the limitation is not claimed, and because the limitation is shown in Goldman figure 3(below). The examiner notes the applicant has NOT claimed that the entire electromagnet of all of the electromagnets are in the same plane, as it appears the Applicant is arguing. The rejection is proper and should be maintained.

Rotor with
magnets of
altering
polarity in the
same plane



The Applicant's argument regarding that the oil of Wakuta is not a heat transfer medium or heat absorbing medium is not persuasive. Oil is inherently a heat transfer fluid. Wakuta teaches that heat is removed from the oil at the cooling fins 15 removes heat from the motor, the bearings, and the gears. The examiner notes that the claims are silent on the inclusion or exclusion of a pump, therefore the argument is irrelevant. The rejection is proper and should be maintained.

The Applicant's argument that claim 31 is allowable for the reasons set forth above is not persuasive because the prior arguments are not persuasive. The rejection is proper and should be maintained.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Karl Tamai
Primary Examiner
Art Unit 2834



KIT
December 14, 2001

Conferees

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